

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 21-42 are pending in the application, with claim 21 being the independent claim. Support for the amended claim can be found at page 25, lines 23-25 and page 23, line 10 through page 24, line 4. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and request that they be withdrawn and that the application be deemed sufficient for allowance.

**Objection to the Information Disclosure Statement**

The Office Action states that the Information Disclosure Statement fails to comply with the provisions of 37 C.F.R. §§ 1.97, 1.98 and M.P.E.P. § 609 because reference # AS13 is a search report and is not a patent with a reference number. Applicants note that the Examiner is most likely referring to the International Search report filed as reference #AT13, not #AS13. Applicants point out that reference #AT13 is the search report for the International Application published as WO 98/02455 and listed on Form 1449 under Foreign Patent Documents as reference #AM1. Applicants note that this International Application was published without an International Search Report, and that Applicants submitted document #AT13 as an addendum to this published International application. Thus both the foreign patent document and the International Search report have been submitted with the Information Disclosure Statement. The Information Disclosure Statement therefore

complies with the provisions of 37 C.F.R. §§ 1.97, 1.98 and M.P.E.P. § 609. Applicants respectfully request that the objection be withdrawn.

### **Rejections Under 35 U.S.C §§ 101 and 112**

The Office Action states that claims 21-42 are rejected under 35 U.S.C §§ 101 and 112 because the claimed invention is allegedly not supported by either a specific and substantial asserted utility or a well established utility. Paper No. 7, page 3.

The Office Action states that the specification discloses "the use of the TIF-2 to understand the mechanism underlying the model for nuclear receptor modulations," but that this "study of models lacks substantial utility because further research to identify or reasonably confirm a 'real world' context of use is required." Paper No. 7, page 3. Further, the Office Action states that "further experimentation of the protein itself would be required before it could be used." Paper No. 7, page 3.

Applicants respectfully disagree. Applicants note that only one credible assertion of specific utility needs to be made for the claimed invention to satisfy 35 U.S.C. §§ 101 and 112. According to the court, "when a properly claimed invention meets at least one stated objective, utility under 35 U.S.C. § 101 is clearly shown." *See, e.g., Raytheon v. Roper*, 220 U.S.P.Q. 592, 598 (Fed. Cir. 1983), cert. denied, 469 U.S. 835 (1984).

Applicants point out that TIF2 functions as a nuclear receptor (NR) transcriptional mediator. Specification, page 1, lines 6-7. The nuclear receptor family includes receptors for steroid hormones, thyroid hormones, vitamin D, and the vitamin A derivative retinoic acid. These NRs act as transcriptional enhancer factors, and upon association with their cognate ligand, elicit a wide range of responses including control of glycogen and mineral

metabolism, the development of the embryonic reproductive system, and bone development and differentiation. Specification, page 2, lines 7-29.

TIF2 is shown to interact directly with the ligand binding domains of NRs in an agonist - and AF-2 integrity-dependent manner *in vitro* and *in vivo*, and enhance nuclear-mediated transcriptional activation. Specification, page 6, line 26 through page 7, line 2. Polypeptide fragments of TIF2 encompassing different regions show at least one biological activity of the TIF2 protein. For example, a TIF2 polypeptide including amino acids 624 to 1131 interacts in an agonist-dependent manner with nuclear receptors and enhances nuclear receptor-mediated transcriptional activation. Furthermore, a TIF2 polypeptide including amino acids 624 to 849 interacts with the ligand binding domain of an NR, a TIF2 polypeptide including amino acids 1010-1131 activates CBP-dependent transcription, and a TIF2 polypeptide including amino acids 1288-1464 activates CBP-independent transcription. Specification, page 31, lines 8-28.

Additionally, Applicants point out that the disclosure recites a specific and credible utility of the TIF2 protein. The specification describes how the polypeptides of the present invention are useful in screening assays for identifying agonists and antagonists of NR AF2-mediated transactivation, and thus are also useful in assays for identifying drugs capable of enhancing or inhibiting nuclear receptor-mediated pathways. Specification, page 33, line 24 through page 34, line 2. These screening methods are discussed in further detail from page 34 to page 43.

Applicants need only provide one credible assertion of specific and substantial utility for each claimed invention to satisfy the utility requirement. See M.P.E.P. § 2107.02 at 2100-37 (Eighth edition, First Revision, February 2003). The examples described above

support a specific and substantial utility for the claimed invention. The function of TIF2 as a nuclear receptor transcriptional mediator and the capability of TIF2 polypeptide fragments to exhibit specific biological activities of the TIF2 protein is a specific utility. Furthermore, identifying drugs capable of enhancing receptor-mediated pathways is a credible utility, and one that is clearly useful in the context of the real world. The claimed invention thus satisfies the requirement of 35 U.S.C § 101. Therefore, Applicants respectfully request that the rejection under 35 U.S.C § 101 be withdrawn.

The Office Action states that claims 21-42 are rejected under 35 U.S.C § 112, first paragraph "since the claimed invention is not supported by either a substantial asserted utility or a well established utility . . . one skilled in the art clearly would not know how to use the claimed invention." Paper No. 7, page 4. Applicants assert that the claimed invention is supported by a specific and substantial utility, and complies with the requirements of 35 U.S.C § 101 as described above. The Examiner "should not impose a 35 U.S.C. § 112, first paragraph, rejection grounded on a 'lack of utility' basis unless a 35 U.S.C. 101 rejection is proper." M.P.E.P. § 2107.01 (IV.) at 2100-36 (Eighth edition, First Revision, February 2003). Because the claimed invention complies with the utility requirement of 35 U.S.C. § 101, the rejection under 35 U.S.C. § 112, first paragraph, based on the alleged lack of utility of the claimed invention, should be not be maintained. Applicants therefore respectfully request that this rejection be withdrawn.

**Rejections under 35 U.S.C § 112, first paragraph, written description**

The Office Action states that claims 21, 36, and 37-42 are rejected under 35 U.S.C § 112, first paragraph, as "containing subject matter which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.” Paper No. 7, page 4. The Office Action states that the “claims encompass a genus of variant TIF-2 because of the recitation of % identity without functional limitations.” Paper No. 7, page 4.

Applicants have taken the Examiner’s suggestion and amended claim 21 to include a functional limitation where the TIF2 polypeptide is a “polypeptide having a TIF2 protein activity.” A “polypeptide having a TIF2 protein activity” is defined in the specification on page 25, lines 23-25, as being a polypeptide exhibiting similar, but not necessarily identical activity to at least one biological activity of the TIF2 protein as measured in a particular biological assay. Examples of TIF2 biological activities are described and include enhancement of nuclear receptor-mediated transcriptional activation and binding to nuclear receptors (interaction with the NID domain). Specification page 23, line 10 through page 24, line 4. Measurement of these biological activities are described in Examples 3-7. Claim 21, amended to include the above-described functional limitation now satisfies the written description requirement of 35 U.S.C § 112. Claims 36-42, depend from claim 21 and thus would include the functional limitations as set forth in amended claim 21.

Applicants respectfully request that the Examiner consider the amended claim and that the rejection under 35 U.S.C § 112, first paragraph, be withdrawn.

***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested. Applicants respectfully submit that the application is in proper condition for allowance.

Respectfully submitted,

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